

Recovery Plan Action Status

Plan Name: Sonora tiger Salamander (*Ambystoma tigrinum stebbinsi*) Recovery Plan

Plan Status: Final

Plan Date: 24-Sep-02

Lead Agency: USFWS

Lead Office: Arizona Ecological Services Field Office

(602) 242-0210

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	1.1	Develop guidelines for watershed use and maintenance	Not Started	FY 2000 - FY 2004	FY 2008	Participation Team	Management: Planning	Internal Administrative	
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	3	1.10	Develop 3 self-sustaining cienegas as salamander habitat	Not Started	FY 2007	FY 2012	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation	Contract	Unfunded. Habitat not likely to become available for this action.
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	1.2	Implement watershed use and maintenance guidelines	Not Started	FY 2008	FY 2013	Neosho National Fish Hatchery, Arizona State Parks Board, Participation Team, United States Forest Service-Coronado National Forest	Management: Land Use	Internal Administrative	
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	1.3	Implement guidelines for cattle pond use and maintenance	Ongoing Current	FY 1995 - FY 1999	FY 2013	Neosho National Fish Hatchery, Arizona State Parks Board, Participation Team, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation	Internal Field Assistance, Internal Technical Assistance	Guidelines implemented at Peterson Ranch Pond cleanout. Guidelines will be implemented as part of San Rafael Ranch HCP.
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	1.4	Develop cleaning and maintenance program for cattle ponds	Ongoing Current	FY 2008	FY 2013	Neosho National Fish Hatchery, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Planning	Internal Administrative	Included in San Rafael Ranch HCP.
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	1.5	Enforce cattle pond and watershed use and maintenance guidelines	Ongoing Current	FY 2012	FY 2032	U.S. Fish and Wildlife Service	Other: Law Enforcement	Internal Administrative	Included in San Rafael Ranch HCP.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	1.6	Enhance aquatic and bank-line vegetation	Not Started	FY 2009	FY 2019	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Acquisition: Management Agreement	Internal Administrative	Partners for Fish and Wildlife funded a project to fence potential habitat from grazing.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	1.7	Control pH, if necessary	Not Started	FY 2008	FY 2013	Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation	Internal Administrative	Does not appear to be currently needed due to current inactive copper smelters in Sonora, Mexico within and adjacent to species range.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	1.8	Develop cooperative agreements with private landowners to protect habitat	Ongoing Current	FY 2006	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Participation Team	Management: General	Internal Administrative	Developed Habitat Conservation Plan with the San Rafael Ranch that covers the salamander. Ranch is majority of private land within range of the salamander. HCP has been finalized; FWS completing BO, findings, and permit language.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	1.9	Build new ponds, if needed	Ongoing Current	FY 2007	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation	Internal Administrative	None in 2011.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	2.1	Explore with AGFD opportunities and mechanisms to minimize or eliminate introduction of crayfish	Not Started	FY 2008	FY 2010	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Management: General	Internal Administrative	Unfunded. AGFD submitted a NFWF proposal this year but it was not funded.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	2.2	Enforce regulations prohibiting nonnative predator introduction	Ongoing Current	FY 2000 - FY 2004	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Other: Law Enforcement	Internal Administrative	The current wildlife manager in the San Rafael Valley is taking a more active role in enforcing nonnative predator introduction on public lands.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	2.3	Remove introduced predators	Ongoing Current	FY 2008	FY 2020	U.S. Fish and Wildlife Service, Participation Team, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation, Management: Population Monitoring, Management: Predator and Competitor Control	Contract, Internal Field Assistance, Volunteer	The Coronado National Forest began a pilot project in 2010 to remove introduced predators from 10 cattle tanks within 5 miles of Peterson Ranch Pond. The Forest has received funding continue and expand this work through 2012. Sky Island Alliance received a NFWF grant in 2011 to work on bullfrog removal in the San Rafael Valley.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	3.1	Enforce laws prohibiting introduction, transport, and collection of tiger salamanders in SRV	Ongoing Current	FY 2000 - FY 2004	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery, Arizona State Parks Board	Other: Law Enforcement	Internal Technical Assistance	Current Wildlife Manager in San Rafael Valley has taken a greater interest in this.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	3.2	Remove introduced salamanders	Ongoing Current	FY 2008	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery, Arizona State Parks Board	Management: Predator and Competitor Control	Internal Field Assistance	Salamanders removed from Peterson Ranch Pond in Scotia Canyon in 2009 and a pond on Fort Huachuca in 2009 and 2010. Genetic testing of Peterson Ranch Pond salamanders revealed hybrid salamanders. Genetic testing has not yet been conducted on Fort Huachuca salamanders.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	4	Develop approaches to minimize disease	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Management: Planning	Internal Administrative	196 dead salamanders discovered in Meadow Valley Tank in 2010, likely due to ATV. No dieoffs detected during 2011 surveys.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	5.1	Prepare monitoring schedule and protocol	Complete	FY 2000 - FY 2004	FY 2013	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Participation Team, United States Forest Service-Coronado National Forest	Management: Planning	Internal Field Assistance	Current protocol with 4 surveys annually has been successfully implemented since 2004 and will continue through 2013.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	5.2	Develop agreements with willing land owners to survey on private property	Ongoing Current	FY 2006	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Management: Planning	Internal Administrative	AGFD is monitoring salamanders on the San Rafael Ranch from 2009-2013. USFWS has agreed to monitor salamanders as part of the San Rafael Ranch HCP.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	5.3	Survey for salamanders on private lands pursuant to agreements developed in 5.2	Ongoing Current	FY 2006	FY 2013	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Management: General	Internal Field Assistance	2009-2010 field season is first year the San Rafael Ranch was included in annual monitoring of the salamander. Annual monitoring conducted in 2011.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	5.4	Develop interagency cooperation and data repository	Ongoing Current	FY 2000 - FY 2004	FY 2013	Arizona Department of Game and Fish	Management: Planning	Internal Field Assistance	AZ Game and Fish developed a Sonora Tiger Salamander database in 2004. Data is shared with all agencies involved in salamander recovery. In 2010 the recovery team decided to add several fields to the database to improve communication with landowners (synonyms for tank tames, grazing allotment numbers, coordinates in decimal degrees).
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	5.5	Conduct monitoring	Ongoing Current	FY 2000 - FY 2004	FY 2013	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Management: Population Monitoring	Contract, Internal Field Assistance, Volunteer	During 2010-2011 survey season, AGFD hired a contractor to survey 80 tanks per the survey protocol. Monitoring will continue through 2013. The 5-year interim report on monitoring is yet to be finalized by AGFD.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	5.6	Survey potential habitats in Sonora	Ongoing Current	FY 2006	FY 2013	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Instituto del Medio Ambiente y El Desarrollo Sustentable del Estado de Sonora	Management: General	Internal Field Assistance	Salamander found in Los Alisos drainage and a terrestrial salamander was found in the Santa Cruz River drainage below Pylon Tank. No surveys conducted in 2010 due to weather and 2011 due to inability to travel to Mexico.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.1.1	Determine age structure	Not Started	FY 2008	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Demographic Studies	Contract	Unfunded.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.1.2	Obtain estimates of female fertility and proportion of females breeding	Not Started	FY 2008	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Demographic Studies	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.1.3	Acquire life history transition probabilities	Not Started	FY 2008	FY 2008	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Population Surveys	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.1.4	Mark/recapture studies of dispersal	Not Started	FY 2008	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Population Surveys	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	6.1.5	Radiotelemetry	Not Started	FY 2008	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Population Surveys	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	1	6.1.6	Develop PVA	Not Started	FY 2009	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Other Information	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.2	Research spread & environmental triggers of disease	Ongoing Current	FY 2008	FY 2012	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Disease	Graduate Student	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	6.3	Microsatellite analysis	Not Started	FY 2008	FY 2010	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery	Research: Genetics	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	6.4	Investigate low pH	Not Started	FY 2008	FY 2009	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, United States Forest Service-Coronado National Forest	Research: Habitat Status	Contract	Currently seems to be unnecessary.

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Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.5	Survey to determine crayfish distribution	Not Started	FY 2000 - FY 2004	FY 2007	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Research: Habitat Status	Contract	
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.6	Research crayfish removal	Not Started	FY 2008	FY 2009	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery, United States Forest Service-Coronado National Forest	Research: Predation	Contract	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	3	6.7	Investigate low genetic diversity and develop management recommendations	Not Started	FY 2013	FY 2016	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service	Research: Genetics	Contract	Unfunded. Will submit SSP grant in FY12
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	7.1	Post and maintain signs	Not Started	FY 2013	FY 2017	Arizona Department of Game and Fish, Neosho National Fish Hatchery, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Habitat Maintenance and Manipulation	Internal Field Assistance	Unfunded.
Sonora tiger Salamander (Ambystoma tigrinum stebbinsi)	2	7.2	Prepare brochures and make them available to the public	Ongoing Current	FY 2007	FY 2013	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Neosho National Fish Hatchery, Arizona State Parks Board, United States Forest Service-Coronado National Forest	Management: Planning	Internal Field Assistance	Brochure completed in 2007 and continue to be available to the public.

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Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	7.3	Participation team meetings	Ongoing Current	FY 2000 - FY 2004	FY 2013	Arizona State University, Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Participation Team, United States Forest Service-Coronado National Forest	Management: Planning	Internal Administrative	Annual recovery meeting took place on April 28, 2011 at the Arizona Ecological Services Office.
Sonora tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)	1	8.0	Practice adaptive management	Not Started	FY 2012	FY 2017	Arizona State University, U.S. Fish and Wildlife Service, Participation Team	Management: General	Internal Administrative	